

AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph at page 3, lines 3-13 with the following paragraph:

Imperfect alignment within the hard magnetic thin film of the biasing elements can lead to a degradation of sensor properties, including head-to-head comparisons of amplitude, noise and glitching. Because recording heads are fabricated en masse on a single wafer it is desired that any variation in operation between heads is minimized or ideally is zero. However, distortion caused by misalignment of single grains within the hard magnetic bias elements increases head-to-head variation. The result is reduced manufacturing yield, increased production cost and potentially increased field failure rates. Consequently, there remains a need in the art for improved magnetic anisotropy in permanent magnet bias elements thereby reducing distortion in sensor properties.

Please replace the paragraph at page 7, lines 18-28 to page 8, lines 1-2 with the following paragraph:

For illustrative purposes only, MR sensor 110 of FIG. 1 is shown as a top spin-valve having sensing layer 130, spacer layer 132, pinned layer 134, and antiferromagnetic layer 136. Spacer layer 132 is positioned between sensing layer 130 and pinned layer 134, and pinned layer 134 is positioned between antiferromagnetic layer 136 and spacer layer 132. Sensing layer 130 and pinned layer 134 are each formed of at least one layer of a ferromagnetic material, while spacer layer 132 is formed of a nonmagnetic material. [[+]]The magnetization of sensing layer 130 rotates freely in response to external magnetic field emanating from a magnetic medium, while the magnetization of pinned layer 134 is fixed in a predetermined direction by exchange coupling with antiferromagnetic layer 136. The resistance of MR sensor 110 varies as a function of an angle that is formed between the magnetization of sensing layer 130 and the magnetization of pinned layer 134.

Please replace the paragraph at page 11, lines 1-8 with the following paragraph:

The high anisotropy PM bias elements 112 and 114 are preferably “set” during head fabrication by the application of a large magnetic ~~field~~ field along a direction parallel to the air bearing surface (ABS). The setting field corrects the misdirection of magnetization of any errant grains; leading to a representative hard magnet structure of the present invention such as is seen in FIG. 3. After removal of the setting field, the magnetic easy axis (remanent magnetization) of each grain 128 is aligned substantially parallel with common orientation.